

Analysis Of Deteriorating Inventory/Production Systems Using A Linear Quadratic Regulator

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Summary

We consider an inventory-production system where items deteriorate at a constant rate. The objective is to develop an optimal production policy that minimizes the cost associated with inventory and production rate. The inventory problem is first modeled as a linear optimal control problem. Then linear quadratic regulator (LQR) technique is applied to the control problem in order to determine the optimal production policy. Examples are solved for three different demand functions. Sensitivity analysis is then conducted to study the effect of changing the cost parameters on the objective function. (C) 1998 Published by Elsevier Science B.V.

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